corroboration, although the author only claims to have "got it up" since the idea came to him. The revolution in thought, if the theory is substantiated, may be expected to resemble the change in astronomical ideas at the time of Copernicus. It is to be hoped that an English edition will soon appear.

The Earliest Forms of Society.

(1) *Primitive Society: The Beginnings of the Family and the Reckoning of Descent.* By Dr. E. S. Hartland. Pp. v+180. (London: Methuen and Co., Ltd., 1921.) 6*s.* net.

(2) *Primitive Society.* By Dr. R. H. Lowie. Pp. viii+453. (London: George Routledge and Sons, Ltd., 1921.) 21*s.* net.

IT is interesting to place these two books side by side in order to contrast the methods of attacking the problems involved in the study of primitive society which have been adopted by the respective schools to which the authors belong. (1) Dr. Hartland is one of the leading exponents of the view that there is a reasonable presumption that in the evolution of society wherever the patriarchal system now exists it has been preceded by the matriarchate. In the volume under notice he restates this view and summarises the evidence on which it is based in popular form. (2) Dr. Lowie, however, maintains that this theory is based upon an *a priori* assumption, and that Morgan and his followers, in their desire to formulate a logical scheme of social evolution, have distorted the facts by confining their attention to a single group of data. Pouring scorn on the heads of "the older school of anthropologists," he insists upon the empirical character of the evidence, and would have each case taken on its merits, subjected to intensive study, and treated as a whole.

After a review of the evidence on these lines, Dr. Lowie concludes that the theory of unilinear development is entirely fallacious and unwarranted. So far from the group organisation of the *sib* or clan being the foundation of primitive society, it is only one, and that frequently not the most important, of a number of forms of organisation to which the individual may belong. While he is prepared to allow that duplication of conditions may produce duplication of a sequence, as in the relation of polyandry and female infanticide, he formally abjures independent reproduction of the same series of "stages." He goes so far as to say that he is "not convinced of the reality of the totemic phenomenon," and for him the problem of totemism resolves itself into a "series of specific problems not related to one another." If, however, he believes in independent development only in the very limited degree indicated, neither is he a whole-hearted supporter of diffusion; while attaching full weight to diffusion, particularly in continuous areas, he recognises that it does not necessarily preclude independent invention within a limited scope.

It must be acknowledged that if Dr. Lowie's argument in favour of empiricism fails to carry conviction, he has done good service in emphasising the necessity for intensive study of all the facts of a given area as a whole. By concentration on the group organisation of the kin, the supporters of the evolutionary theory have sometimes been led astray. The existence of the family as a social unit at an early stage has been obscured by the view that the family emerged from the group. Dr. Hartland, indeed, speaks of "sexual promiscuity—relieved perhaps by temporary unions in the nature of monogamy." At the same time, owing to his preoccupation with kin organisation, he is unable "to bring Andamanese society within any category at present known." This fact does not, however, suggest to Dr. Hartland a modification of his conclusions, as might perhaps be expected; he prefers to await further evidence.

Our Bookshelf.

The Calendar: Its History, Structure, and Improvement. By Alexander Philip. Pp. xii+104. (Cambridge: At the University Press, 1921.) 7*s.* 6*d.* net.

THIS is not the kind of work that we expect from the Cambridge University Press. It contains numerous historical errors, and is not free from astronomical errors also. The author has endeavoured to guard against criticism of the latter by stating in his preface that his astronomical facts have been derived from the commonly available sources, and that he has disregarded "qualifying refinements known to modern astronomy but irrelevant to a calendrial purpose." This ambition has not prevented him, however, from stating the length of the tropical year to hundredths of a second, or the length of 4000 tropical years to an exact number of minutes. The introduction of these refinements, "irrelevant to a calendrial purpose," might have been pardoned, if they were accurate, which, unfortunately, they are not. But it is in the history of the calendar that the defects of the book are particularly displayed. The author ignores the two most valuable treatises on the subject, Ideler's "Handbuch der Mathematischen und Technischen Chronologie," and Ginzel's work which bears the same title. He writes in an easy way of Egyptian, Chaldean, and Chinese calendars;

© 1922 Nature Publishing Group

but his knowledge of things "Chaldean" may be gauged by a footnote on p. 4, part of which is repeated in a footnote on p. 48. We quote the fuller note: "The 365-day year appeared at Babylon from Egypt after the overthrow of the Assyrian Empire by Nabonassar; but Chaldea subsequently developed a luni-solar, Egypt a solar, calendar." Comment is superfluous.

Bartholomew's General Map of Europe, showing Boundaries of States according to Treaties, 1921. Size 35 in. × 23 in. (Edinburgh: J. Bartholomew and Son, Ltd., 1921.) 1*s*. net.

This map of Europe, on a scale of 1 to 5,500,000, is designed to show the political boundaries and the chief lines of communication by land and sea. It makes no attempt to show the surface features of the land, and in that respect is open to criticism, although the adequate depiction of relief would certainly necessitate a reduction in the number of names. As regards boundaries, railway lines, and place-names, the map is full and accurate. We note, however, that the small States San Marino and Liechtenstein are shown by distinct colours, but are not named, while the principality of Monaco is named, but not indicated as an independent State. The map extends no farther north than about lat. 60° N., with the result that the new Finno-Russian boundary with the Finnish outlet to the Barents Sea cannot be shown. On the east its limits exclude the greater part of the Caucasus and the new States in that region. There is a small inset map showing the boundaries in 1914. The excellence of the colour printing and the legibility of the names make this a useful map for general reference purposes.

Oil Firing for Kitchen Ranges and Steam Boilers. By E. C. Bowden-Smith. Pp. ix + 102. (London: Constable and Co., Ltd., 1920.) 9*s*. net.

The bulk of this book is taken up with descriptions of the Scarab burner and its application during the war to kitchen ranges in Egypt. The relative prices of coal and oil fuel in Egypt make it a big advantage to employ the latter, and the Scarab burner appears to have been of great service on account of its simplicity of construction. In the hands of quite unskilled persons kitchen ranges fitted with this burner have given very little trouble, and show a large saving in the cost of fuel. Thus the Turf Club at Cairo spent £E13·75 per week on coal and wood, and after conversion to oil fuel the weekly expenditure amounts to £E5·92. The drawing and descriptions of the burner and of the methods of fitting it to ranges will be readily followed even by non-technical readers. Some chapters are included on oil-firing steam boilers. It may be well to mention that a supply of compressed air is required; this presented no difficulty in Cairo, since there is a public service of compressed air in connection with the main drainage system, and air was taken from the mains.

The Chemistry of Colloids and Some Technical Applications. By Dr. W. W. Taylor. Second edition. Pp. viii + 332. (London: Edward Arnold and Co., 1921.) 10*s*. 6*d*. net.

The second edition of this work, like the first, is well adapted to introduce the general student to the subject, the theoretical portions and the accounts of experimental procedure being well balanced. The amount of revision, however, appears, on examination, to be rather less than the author's remarks in the preface lead one to expect. Thus the "Valency Rule" still appears in its old and, as recent shattering criticism has shown, very spurious simplicity. Although earlier "complex" theories are given, Pauli's later and more thorough work is not mentioned. Recent results on protection and anomalous adsorption might also have found a place. With a subject in constant flux it is of course difficult to draw the line, but the author appears to have done so distinctly on the side of caution. In spite of these defects the book is still one of the most useful general text-books of colloid chemistry available in English.

The Fireman's Handbook and Guide to Fuel Economy. By C. F. Wade. Pp. viii + 84. (London: Longmans, Green, and Co., 1920.) 2*s*. 6*d*. net.

A good deal of information which will be of service to firemen in helping them to understand what goes on in furnaces and boilers will be found in this little book. The author, however, is not quite happy in some of his fundamental explanations. Thus on p. 3 we read that "heat is a form of energy that can be measured as to quantity by means of a thermometer." Again, on p. 7 appear the following curious statements: "The only heat of the steam that does useful work is the amount added to the water to bring it just to boiling point." "It is much more economical to work at the highest possible pressure so that the latent heat may be low and the useful heat as high as possible." The sketches given in the book are clear, and will be understood readily by stokers.

A First German Course for Science Students. Second edition, revised. By Prof. H. G. Fiedler and Prof. F. E. Sandbach. Pp. x + 99. (London: Humphrey Milford: Oxford University Press, 1920.) 4*s*. 6*d*. net.

To many students of science an introductory course in German constructed to meet their special needs will be very welcome. The first portion of the work under notice consists of a number of passages descriptive of chemical and physical phenomena and experiments by means of which German technical phrases and words are introduced to the reader. Each passage is based on numbered paragraphs appearing in the outline of German grammar which constitutes the latter portion of the book. Here the examples given are, so far as possible, of a scientific nature. A useful vocabulary completes the book.

© 1922 Nature Publishing Group